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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,098	12/18/2006	W. Dennis Slafer	59380-050 (MCMK-004)	4357

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McDermott Will & Emery  
600 13th Street, NW  
Washington, DC 20005-3096

EXAMINER
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RIVERA, JOSHEL

ART UNIT	PAPER NUMBER
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1791

NOTIFICATION DATE	DELIVERY MODE
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04/28/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mweipdocket@mwe.com

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/588,098		SLAFER, W. DENNIS	
	<b>Examiner</b>		<b>Art Unit</b>	
	JOSHEL RIVERA		1791	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 1 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____.                                     |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____.   | 6) <input type="checkbox"/> Other: _____.                         |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 12, 2010 has been entered.

### ***Claim Objections***

2. Claims 1 and 11 are objected to because of the following informalities: claims 1 and 11 read that the optical data storage includes “an elongated linear polymer layer with a substrate of about 4  $\mu\text{m}$  to about 275  $\mu\text{m}$ ”. Page 12 paragraph 40 of the Specification reads that “the optical data storage tape 10 is characterized by a thin (in the approximate range of 4 microns to 1000 microns), elongated tape-like substrate...” Based on this description it is clear that the claim should read “*an elongated linear polymer layer with a thickness* of about 4  $\mu\text{m}$  to about 275  $\mu\text{m}$ ”. Examiner will interpret the claim as stated above. Appropriate correction is required.. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. Claims 1 – 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1 and 11 state that the elongated linear polymer layer has a thickness of about 4 microns to about 275 microns. Page 12 paragraph 40 of the Specification reads that "the optical data storage tape 10 is characterized by a thin (in the approximate range of 4 microns to 1000 microns)" while paragraph 41 states that the apparatus can be used with some modifications that include the use of an optical compensator to correct the optical beam path for the "missing" disc substrate (typically 0.6 mm thick polycarbonate for DVD's). There is no support in the Specification for an apparatus to operate with a substrate with a thickness between the specific range of 4 microns to 275 microns nor any explanation as to why operating between 4 microns to 275 microns is preferred over 4 microns to 1000 microns.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2, 4 – 7, 9, 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster (US Patent 4,836,874).

6. With respect to claim 1, Foster teaches of an apparatus for mass producing compact discs (Abstract), which includes an elongated linear polymer layer that has a thickness of about 5 mils (127  $\mu\text{m}$ ) (column 4 lines 11 – 14), the apparatus comprising a drum mounted for rotation about a rotation axis (Figure 1 item 12), with a surface with predetermined pattern (column 4 lines 1 – 7) and a helium-neon gas laser tube that emits a collimated laser beam of a predetermined wavelength and energy toward a cylindrical diverging lens operative for diverging the laser beam in the axial direction across the entire length of the roller (column 4 lines 38 – 44, Figure 1 item 36 the laser item 38 the lens). Foster fails to explicitly disclose that the drum is seamless with a seamless surface.

7. It would have been obvious to one of ordinary skills in the art at the time of the invention to use a seamless drum in Foster's apparatus. The rationale being that, since

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the preformatted patterns that carry information which is subsequently read and processed by other devices are directly engraved on the drum (column 4 lines 1 – 10) the presence of seams would affect the pattern which would affect the information present in the patterns.

8. With regards to claims 2 and 4, the teachings of Foster are presented above. Additionally Foster teaches the use of a dispenser for dispensing a liquid between the outer surface of the drum and elongated linear polymer layer (Figure 1 item 46), the liquid being a polymeric material (column 4 lines 54 – 63) that is hardened by a focused laser beam in the orange-red spectrum (column 4 lines 64 – 68) and the material begins to fill the pits and creates projections whose shapes exactly match the shapes of the corresponding pits (column 5 lines 6 – 12).

9. With regards to claim 5, the teachings of Foster are presented above. Additionally Foster teaches using backing rollers pressing the elongated linear polymer layer against the drum (Figure 1 items 30 and 34).

10. With regards to claims 6 and 7, the teachings of Foster are presented above. Additionally Foster teaches vacuum-deposition of aluminum or analogous metal on top of the film (column 5 lines 49 – 51), which would inherently require a vacuum chamber containing deposition sources and being adapted to receive the embossed elongated linear polymer layer.

11. With regards to claim 9, the teachings of Foster are presented above. Additionally Foster teaches the roller has recesses or pits (column 4 lines 1 – 7) which would be considered ridges and bosses.

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12. With regards to claim 10, the teachings of Foster are presented above.

Additionally Foster states that the depths, sizes and relative spacing of the pits carry information which is subsequently read and processed by known circuitry of audio and/or video compact disc players (column 4 lines 7 – 10), where the information would intrinsically include header information, servo and error correction information, pre-recorded digital information and pre-recorded analog information.

13. With regards to claim 20, the teachings of Foster are presented above.

Additionally Foster teaches that the liquid dispenser dispenses a dye solution (column 4 lines 57 – 61).

14. Claims 3 and 11 – 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster (US Patent 4,836,874) in view of Norden (WO 97/14142) as evidenced by Rosen et al (US Patent 5,627,817).

15. With regards to claim 3, the teachings of Foster are presented above. Foster fails to explicitly disclose using a chemical to soften the surface of the polymer layer.

16. Norden teaches an embodiment where he uses a chemical to soften the polymer layer prior embossing and then using heat in order to remove the softening chemical after embossing (column 5 lines 25 – 31).

17. It would have been obvious to one of ordinary skills in the art at the time of the invention to use a softening chemical on the surface of the polymer layer, as suggested by Norden, in Foster's apparatus. The rationale being that one of ordinary skills in the art would appreciate that in order to create an impression on a hard plastic surface would require large amount of force and energy, where using a chemical to soften the

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surface prior embossing saves money and time by reducing the amount of force required.

18. With regards to claim 11, Foster teaches of an apparatus capable of mass producing compact discs (Abstract), by embossing an elongated linear polymer layer that has a thickness of about 5 mils (127  $\mu\text{m}$ ) (column 4 lines 11 – 14), with a drum mounted for rotation about a rotation axis (Figure 1 item 12), with a surface with predetermined pattern (column 4 lines 1 – 7) and hardening the embossed surface prior to removing it from the drum by using a helium-neon gas laser tube that emits a collimated laser beam of a predetermined wavelength and energy toward a cylindrical diverging lens operative for diverging the laser beam in the axial direction across the entire length of the roller (column 4 lines 38 – 44, Figure 1 item 36 the laser item 38 the lens). Foster fails to explicitly disclose that the drum is seamless with a seamless surface, softening the surface prior to embossing it and winding the elongated linear polymer with the embossed surface into a roll.

19. It would have been obvious to one of ordinary skills in the art at the time of the invention to use a seamless drum in Foster's apparatus. The rationale being that, since the preformatted patterns that carry information which is subsequently read and processed by other devices are directly engraved on the drum (column 4 lines 1 – 10) the presence of seams would affect the pattern which would affect the information present in the patterns.

20. It would have been obvious to one of ordinary skills in the art at the time of the invention to wind the elongated linear polymer layer with the embossed surface into a



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roll. The rationale being that one of ordinary skills in the art at the time of the invention would appreciate that when working with long webs it would require winding the web into a roll after processing in order to store the finished product and to reduce space.

21. Norden teaches an embodiment where he uses a chemical to soften the polymer layer prior embossing and then using heat in order to remove the softening chemical after embossing (column 5 lines 25 – 31).

22. It would have been obvious to one of ordinary skills in the art at the time of the invention to use a softening chemical on the surface of the polymer layer, as suggested by Norden, in Foster's apparatus. The rationale being that one of ordinary skills in the art would appreciate that in order to create an impression on a hard plastic surface would require large amount of force and energy, where using a chemical to soften the surface prior embossing saves money and time by reducing the amount of force required.

23. With regards to claim 12, the teachings of Foster and Norden are presented above. Additionally Norden teaches an embodiment where he uses a chemical to soften the surface of the polymer layer prior embossment (column 5 lines 25 – 29).

24. With regards to claim 13, the teachings of Foster and Norden are presented above. Additionally Foster teaches the use of a dispenser for dispensing a liquid between the outer surface of the drum and elongated linear polymer layer (Figure 1 item 46), the liquid being a polymeric material (column 4 lines 54 – 63) that is hardened by a focused laser beam in the orange-red spectrum (column 4 lines 64 – 68) and the

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material begins to fill the pits and creates projections whose shapes exactly match the shapes of the corresponding pits (column 5 lines 6 – 12).

25. With regards to claim 14, the teachings of Foster and Norden are presented above. Foster teaches vacuum-deposition of aluminum or analogous metal on top of the film (Foster: column 5 lines 49 – 51). Norden states that applying a metallic reflection layer, which is performed by Foster, to the embossed surface of the registration layer, where binary data are represented by localized level variations, where the reflection layer ensures that, when the registration side of the medium is scanned with a focused light beam, enough light intensity is reflected to yield an acceptable output signal level (column 6 lines 13 – 20, column 7 lines 19 – 20), which would intrinsically classify this layer as an optical recording layer.

26. With regards to claim 15, the teachings of Foster and Norden are presented above. Additionally Norden teaches that the reflection layer has localized level variations (column 7 lines 19 – 20), which can be achieved by endowing the registration layer with a pattern of pits or bumps what can be represent “0” and “1” (column 7 lines 31 – 34, column 8 lines 1 – 6).

27. With regards to claim 16, the teachings of Foster and Norden are presented above. Additionally Norden teaches using a dielectric layer (column 7 lines 9 – 10), a reflection layer (column 7 lines 27 – 28) and the use of squarylium dye (column 7 lines 1 – 4) that, as stated by Rosen, its functionally equivalent to a phase change layer (column 1 lines 21 – 40). It would be obvious to one of ordinary skills in the art at the time of the invention to have used a dielectric layer, reflection layer and phase change

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layer, as suggested by Norden, in Foster's method. The rationale being that one of ordinary skills in the art would appreciate that by applying these layers the properties of the optical medium would be enhanced.

28. With regards to claim 17, the teachings of Foster and Norden are presented above. Additionally Foster teaches the roller has recesses or pits (Foster: column 4 lines 1 – 7) which would be considered lands and grooves and Norden teaches that the embossed forms are usually pits of constant width but variable length (Norden: column 4 lines 14 – 15, lines 18 – 23), which would intrinsically comprise of lands and grooves, and these marks are in an helical path (Norden: column 4 lines 18 – 23) which would be wobbled.

29. With regards to claim 18, the teachings of Foster and Norden are presented above. Foster states that the depths, sizes and relative spacing of the pits carry information which is subsequently read and processed by known circuitry of audio and/or video compact disc players (column 4 lines 7 – 10), where the information would intrinsically include header information, servo and error correction information, pre-recorded digital information and pre-recorded analog information.

30. With regards to claim 19, the teachings of Foster and Norden are presented above. Additionally Norden teaches that a registration layer is provided on the substrate and that the embossing is done under pressure (column 3 lines 21 – 24). Intrinsically if the embossing is done under pressure on the registration layer, the layer would be embedded into the polymer layer as the embossments are created.

31. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Foster (US Patent 4,836,874) view of Takakuwa et al (US Patent 6,162,519).

32. With regards to claim 8, the teachings of Foster are presented above. Foster fails to explicitly disclose the use of an optical head array adapted to write recording marks in the optical recording layer over the pattern of optically readable embossments.

33. Takakuwa teaches a method to write recording marks using a laser cutting machine with pattern based on desired data (column 13 lines 12 – 14).

34. It would have been obvious to one of ordinary skills in the art at the time of the invention to use Takakuwa's laser cutting machine to write recording markings in Foster's apparatus. The rationale to do so would have been that by using a laser cutting machine a more precise and detailed pattern can be formed without affecting the prior embossed pattern by using another press or pressing a blade on the surface of the polymer.

### ***Response to Arguments***

35. Applicant's arguments with respect to claims 1 – 20 have been considered but are moot in view of the new ground(s) of rejection.

36. Regarding the objection of claim 1, the objection regarding the unit for micron has been withdrawn based on the amendments. The objection of claim 1 regarding the elongated linear polymer layer and a substrate has been withdrawn based on the

amendment but a new objection has been made since stating that the elongated linear polymer layer with a substrate indicates that the elongated linear polymer layer and the substrates are two different entities while the Specification treats the polymer layer as the substrate.

37. Regarding claim 8, even though the argument is mooted based on the new grounds of rejection, the arguments regarding the secondary reference Takakuwa are not persuasive. Regarding the use of polyolefin film, Applicant continues to argue that Takakuwa is directed to use molded polyolefin substrate. This argument is not persuasive since there is no indication in the claims nor in the Specification that polyolefin films cannot be used.

38. Regarding Takakuwa's optical array head, Applicant's argument that Takakuwa's laser beam does not read on the claims limitation again is not found to be persuasive. A laser beam source is an optical head array that provides with a focused beam of light. Takakuwa teaches a method to write recording marks using a laser cutting machine with pattern based on desired data (column 13 lines 12 – 14). Since claim 8 states an optical head array adapted to write recording marks in the optical recording layer over the pattern of optically readable embossments, the Examiner fails to see how Takakuwa fails to meet this limitation. Applicant's argument that Takakuwa's laser cutting machine is different because is more expensive is not persuasive since in order to provide a patentable difference the claim must be structurally different from the prior art, not economically different.

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39. Finally, a claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) (The preamble of claim 1 recited that the apparatus was “for mixing flowing developer material” and the body of the claim recited “means for mixing ..., said mixing means being stationary and completely submerged in the developer material”. The claim was rejected over a reference which taught all the structural limitations of the claim for the intended use of mixing flowing developer. However, the mixer was only partially submerged in the developer material. The Board held that the amount of submersion is immaterial to the structure of the mixer and thus the claim was properly rejected.).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHEL RIVERA whose telephone number is (571) 270-7655. The examiner can normally be reached on Monday - Thursday 7:30am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Katarzyna Wyrozebski can be reached on (571) 272-1127. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. R./  
Examiner, Art Unit 1791

/KAT WYROZEBSKI/  
Supervisory Patent Examiner, Art Unit 1791